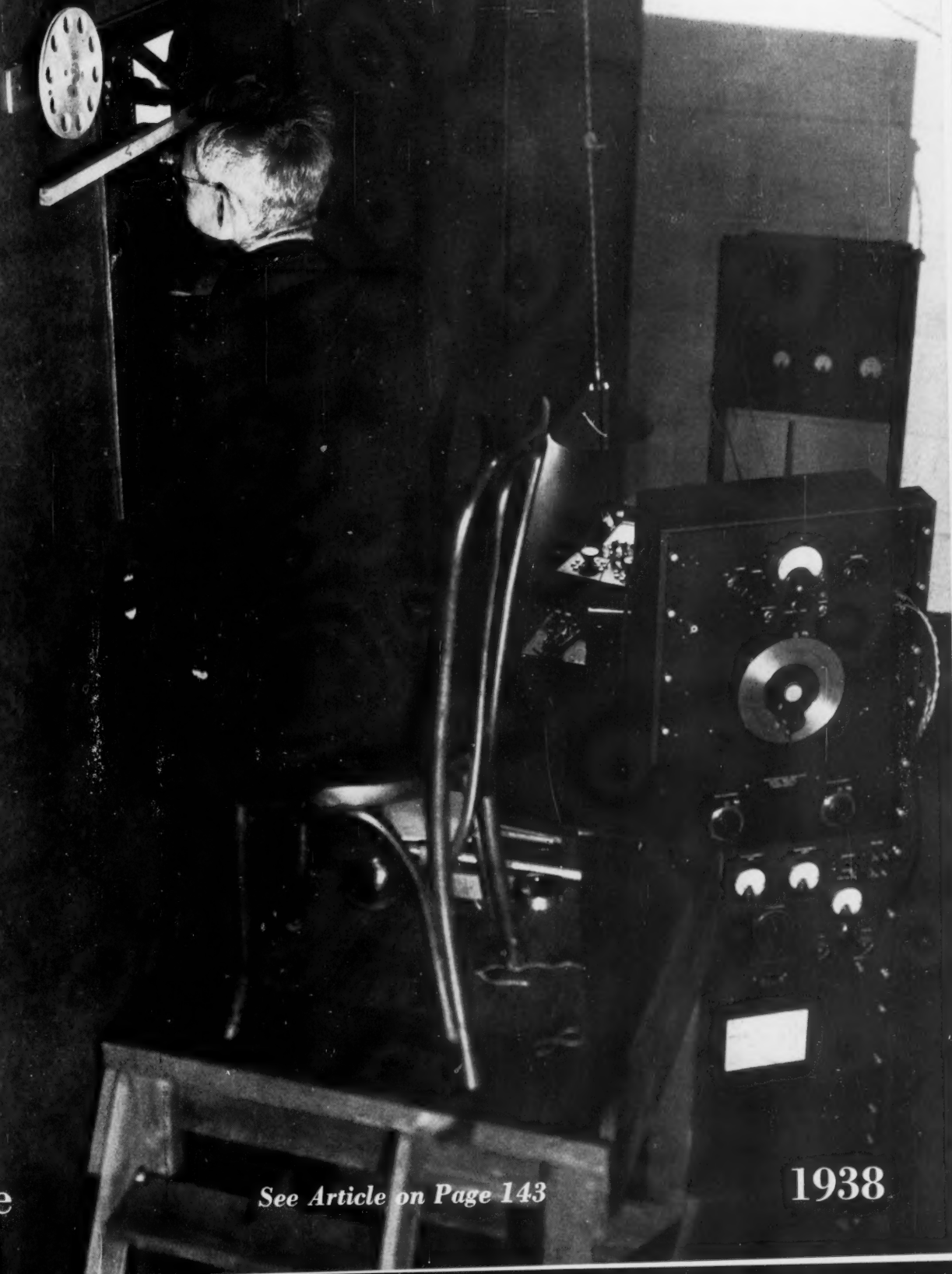


Engineering

Industrial Standardization

and Commercial Standards Monthly

JUL 1938



June

See Article on Page 143

1938

What Makes the Wheels Go Around

THE American Standards Association is not an association in the ordinary sense of the word, but rather a federation of some 73 national trade associations, technical societies and government departments associated for the purpose of:

1. Providing the means by which organizations concerned with standardization work may cooperate in establishing American Standards.
2. Acting as a clearing-house for information on standards and standardization work.
3. Furthering the knowledge and use of standards as a means of advancing national economy.
4. Through its membership in the International Standards Association (ISA) providing the means of cooperation with other countries.

Ultimate responsibility for the policies and affairs of the American Standards Association rests with the group of national organizations listed as Member-Bodies on the opposite page. From this group are elected the Board of Directors and officers of the Association, who are responsible for administrative and financial affairs. Only national organizations are eligible for this type of membership.

Technical activities in connection with the development and approval of standards are in charge of the Standards Council, made up of officially delegated representatives of all the Member-Bodies of the Association. Because of the variety and volume of the work, however, certain Council activities are carried on under correlating or industry committees in the mechanical, electrical, mining, safety, building, traffic, and consumer goods fields.

Standards are developed by methods which give all organizations concerned with the work an opportunity to take part, and result in a national agreement. In most cases, the development of a standard is under the supervision of a technical committee, or its equivalent, through which all interested groups are represented. Such committees, like miniature legislatures set up along industrial lines, carry out the detailed technical work involved in developing standards.

All standards must receive final approval by a letter-ballot vote of the Standards Council which is representative of all the national organizations among the membership of the ASA.

At present more than 600 organizations are taking part in ASA work, with a total of 2987 men serving on ASA committees. It is the earnest, unassuming efforts of this group and the cooperation of the organizations which they represent on many difficult inter-group problems that make the services of the ASA to American industry possible.

The work of the Association is financed entirely through memberships. The Association has attained its present place through practical service to industry and is able to continue its work because of industry's support.

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Am. Home Economics Assn.
Am. Institute of Bolt, Nut & Rivet Mfrs.
Am. Institute of Elec. Engineers
Am. Iron & Steel Institute
Am. Petroleum Institute
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Am. Soc. of Mechanical Engineers
Am. Soc. for Testing Materials
Am. Transit Association
Assn. of American Railroads
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Industrial Standardization

Combined with Commercial Standards Monthly

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with the cooperation of the National Bureau of Standards

RUTH E. MASON, *Editor*

This Issue

Our Front Cover: Equipment used at the National Bureau of Standards for making absolute sound measurements. The observer is determining the deflection of a Rayleigh disc.

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**Standardization is dynamic, not static. It means
not to stand still, but to move forward together.**

June, 1938

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Vol. 9, No. 6

ASA Approves A.S.T.M. Tests For Rubber Insulating Tape

**Widely Representative
A.S.T.M. Committee Car-
ries on Research on Rub-
ber as Basis for Standards**

by

W. H. S. Youry¹

*Chairman, Subcommittee IX on
Insulating Tape of A.S.T.M.
Committee D-11 on Rubber Products*

ABOUT 2,000,000 pounds or 4,000,000 rolls (if put up in 3/4 inch widths and 30 foot lengths) is a reasonable estimate of the rubber insulating tape produced annually in the United States. This amount of material would require some 200 fully loaded five-ton trucks to transport it and if considered in a single strip 3/4 inch wide would be close to 23,000 miles long or almost sufficient to completely circle the earth at the equator.

Rubber insulating tape is just as important to the electrician or other workman charged with the responsibility of properly insulating joints in electrical wires and cables as is turpentine to the painter or solder to the plumber. It is used daily in the installation of new plants, in maintenance, and in repair work.

Such tape, sometimes referred to as simply rubber tape or splicing compound, is a ribbon of soft unvulcanized or partly vulcanized rubber which sticks to itself tenaciously and subsequently becomes a solid mass of insulation after successive layers are wrapped around the wire. However, as its resistance to mechanical injury and deteriora-

tion by light is not high, it is practically always protected by a supplementary covering of friction tape.

Commercial rubber tapes vary greatly in their characteristics. They vary from soft unvulcanized compounds which are very tacky and low in tensile strength to those which have been almost completely vulcanized, resulting in a product of high tensile strength with very little tack. To the average layman or handy man about the home, who occasionally does some miscellaneous electrical wiring work such as the repair of a broken lamp

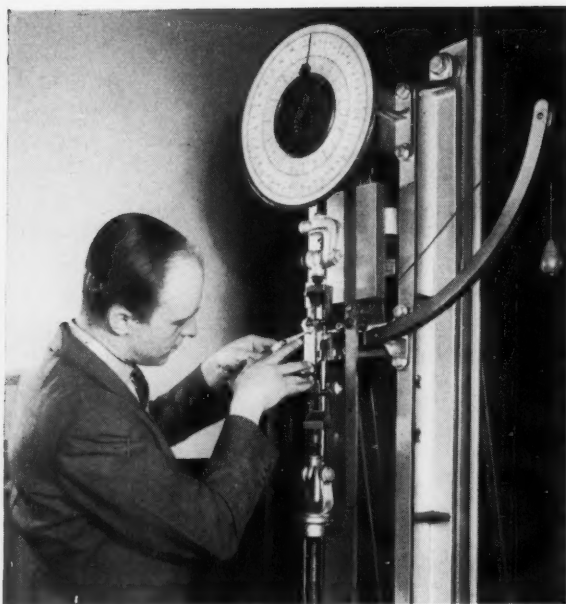


Courtesy Bell Telephone Laboratories

Fusion Test

This test specimen, elongated 200 per cent, is being wound up on a 1/4-inch free-turning mandrel. A weight of 4 pounds per inch of width is attached to it.

¹Bell Telephone Laboratories, New York.



Courtesy Bell Telephone Laboratories

Tensile and Elongation Test

The operator is using calipers to follow the separation of the gage marks on the test specimen. The ultimate breaking load will be recorded on the dial at the top of the testing machine.

cord, most any piece of rubber tape is acceptable. However, to engineers and others interested in electrical insulation the most desirable type of tape depends upon the use to which it is to be put. To insure the best possible tape, the conditions of use must be studied and then requirements specified that will insure a satisfactory tape for all normal conditions.

The rubber tape specification of the American Society for Testing Materials, recently approved as an American Tentative Standard (C59.6-1938; A.S.T.M. D119-35T) by the American Standards Association, provides for a tape the characteristics of which make it satisfactory for the majority of cases where rubber tape is required. Certain requirements are framed primarily to control the handling qualities of the tape. These requirements limit such things as tensile strength, elongation, and tackiness. Other requirements, intended chiefly as criteria of the serviceability in the plant, are those controlling such features as dielectric strength and fusion. The latter is characterized by the tape's resistance when its surfaces are pulled apart after they have been pressed together about as tightly as they would be in practical use. Because it is just as important to have good fusion

characteristics some considerable time after manufacture as when new, a guarantee clause is incorporated to assure this quality at any time within eight months after production.

Stretching Quality Important

Due to the fact that rubber tape is used extensively to wrap joints in rubber-covered wire, it needs to have handling qualities which facilitate application as a relatively smooth and not too bulky built-in-place rubber insulation. Consequently, a material which will stretch and not break under the normal strain of wrapping is highly desirable. In the American Standard, tensile strength and elongation, measured on the well known dumb-bell shaped specimen of the 1/2 inch by 2 inch size in the constricted area, are limited to not less than 250 pounds per square inch and 300 per cent, respectively. It is also important that there be no unwinding of the rubber tape while the workman is getting ready to bind down with friction tape. For this reason a tackiness requirement has been incorporated in the specification which prohibits any tape having a tendency to unwind immediately following its windup on a mandrel at 200 per cent or more elongation and under a stipulated load.

The minimum dielectric strength of this material is 350 volts per mil of thickness when tested under an electrode pressure of one pound per square inch by a 60-cycle alternating-current voltage of practically sine wave form. This test is made with the tape placed between two flat electrodes having an area of contact with the surfaces of the tape of exactly 1/4 inch in width by 4 inches in length.

Tape Elongated 200%

As rubber tape is always stretched in use, the fusion test in accordance with the American Standard, as is also the case in the tackiness test, is made with the tape elongated. It is determined by the use of a free-turning 1/4 inch mandrel mounted in ball bearings. A test strip of tape 7 inches in length is firmly secured to the mandrel by the first two inches; then a weight of 4 pounds per inch of width is attached to the specimen and the tape is accordingly elongated. If the weight is insufficient to elongate the tape 200 per cent or more, additional force is applied by hand to elongate the material 200 per cent. The tape is then wound up on the mandrel at a uniform rate, and is allowed to stand 3 minutes with the weight attached. After this, with the weight still attached, it is allowed to unwind slowly. The mandrel shall revolve not more than 2-1/2 turns

in the first two minutes, during which time the tape shall sustain the weight or shall break at the point of unwinding.

As there is need for both narrow and wide tape, several sizes of rolls have been provided for. Widths of 3/4 inch and 2 inches are available, but nominal lengths are limited to 30 feet because anything larger would be too bulky for easy handling. Each roll is individually packaged in a suitable box, properly identified as to its contents and the manufacturer, in order to prevent any injury during normal handling and shipping. Each roll has a separator in the form of a parchment paper or glazed sheeting between the adjacent convolutions of the rubber; otherwise the

tape could not be unwrapped without tearing or stretching it.

The inspection of this material is of a destructive nature and the cost of such inspection on each individual roll would be far greater than the value of the tape involved. In recognition of these facts the American Standard goes so far as to set up a sampling inspection, in which the number of rolls to be looked at is determined by the number of rolls submitted at any one time. It is believed that this procedure of checking a limited number of rolls picked at random should assure the acceptance of only that tape which in general meets all the requirements of the specifications.

ASA Committee Acts On Consumer Problems

The Advisory Committee on Ultimate Consumer Goods of the American Standards Association, at its meeting May 13, agreed that it would be desirable to undertake the development of standards for laundering performance, dry cleaning performance, and rug cleaning performance. The committee came to this decision following a detailed report of dry cleaning and laundering problems by a subcommittee which studied certification and approval systems of the American Institute of Laundering, the National Association of Dyers and Cleaners, the Institute for Maintaining Dry Cleaning Standards in the United States and Canada, and the Certified Rug Cleaners Institute. Further study by the subcommittee to determine the point of view of the various groups interested in such standards is to be made before recommendations are presented to the Standards Council regarding the initiation of this work.

Information on shoes, now available, would be helpful to the customer if shown on labels, the Advisory Committee also agreed at its meeting. It recommended that a label be worked out by the Consumer-Retailer Relations Council to give information about the type of construction of the shoe; the material from which the sole is made; the tanning process if the shoe is made of leather; the material of the shank; and the material in the counter. Manufacturers who are carrying on research projects will be invited to become members of the ASA subcommittee on shoes.

Because a large amount of wall paper now being sold is called "washable," the Advisory

Committee decided to ask the National Bureau of Standards to call the attention of the Standing Committee in charge of the Commercial Standard on Wall Paper, CS 16-29, to the desirability of including provisions covering washability of wall paper in the Commercial Standard. It is understood that this question will soon receive attention by the Standing Committee.

British Retail Association Comments on U. S. Standard

"We note with some pleasure the Commercial Standard for the description of wool and part-wool fabrics recently issued by the U. S. Bureau of Standards. The important item in this standard is that it contains a definition of the word 'woolen,' which, as members of the R.T.S.A. well know, has been the subject of discussion between the Yorkshire manufacturers and ourselves for some considerable time. We say that the word 'woolen' is understood by the public to mean that an article so described is made wholly of wool; the manufacturers say that 'woolen' refers only to a *process* and does not necessarily imply a material content.

"Although, of course, this U. S. Standard has no validity in this country, it is at least satisfactory to us to know that at least some people agree with us, all the more so since this standard was prepared at the instance of the National Association of Wool Manufacturers in the U. S. A."—*The Bulletin of the Retail Trading-Standards Association, London, March, 1938.*

Standardization, Coordination Needed for Building Industry Prosperity

"Industry must attack its problems on a comprehensive, not a piecemeal basis. There is need of greater co-ordination of planning, building, and management. Labor costs cannot be reduced until there exist responsible operators who can assure a sufficiently continuous volume of production to maintain a satisfactory annual wage level. Such large and responsible operating units cannot be formed until some advantage can be gained through more unified organization and direct purchasing of materials, inasmuch as the present methods of jobber distribution and organization by numerous crafts and subcontractors impede economical operation on a large scale.

"Again, material costs cannot be reduced without the possibility of larger orders of more standardized products. Organizing talent similar to that which has produced the automobile industry is required to transform the present chaotic conditions into a unified, economical productive program."—*From "Can America Build Houses?" by Miles L. Colean, published by the Public Affairs Committee of New York City.*

New Handbook Includes All SAE Standards

The 1938 SAE Handbook, which includes all standards and recommended practices adopted by the Society of Automotive Engineers, was published in April and copies are now available.

New standards include those for passenger-car trailer couplings, motor-vehicle suspension coil springs, and some sections of the standard for SAE steels. Important new revisions and extensions are given in the standards for transmission and axle lubricants, tractor drawbars, leaf springs, automotive grey iron castings, and storage batteries.

The standard for lubricants, in addition to the viscosity classification described in the April is-

sue of INDUSTRIAL STANDARDIZATION, includes general information on lubricants. This section calls attention to the fact that the classification covers hypoid and extreme pressure lubricants as well as the straight mineral oils described in our article.

Special sections give dimensional tolerances, inch-millimeter conversions according to the American Standard, regulations of the SAE standards committee, and a list of 55 American Standards of special interest to the automotive industry.

The Society of Automotive Engineers has administrative responsibility for ten committees under the procedure of the American Standards Committee, and is represented on 27 others.

Copies of the 1938 S.A.E. Handbook may be ordered from the Society of Automotive Engineers, 29 West 39 Street, New York, at \$5.00 each.

Adams to Head General Electric's New Standards Department

To better coordinate its activities in the development and application of standards both within the company and outside, the General Electric Company has organized a new Standards Department. L. F. Adams has been named manager of the new department, and will act as assistant to E. O. Shreve, vice-president. Mr. Adams has long been active in standardization work. He has served as a representative of the National Electrical Manufacturers Association on the Standards Council of the American Standards Association since May, 1937; as chairman of the Safety Code Correlating Committee; and as a member of the Electrical Standards Committee and committee on procedure, as well as of many project committees. Mr. Adams is also a member of the U. S. National Committee of the International Electrotechnical Commission, and will represent that organization at the meetings of the Commission being held at Torquay, England this June. Associated with Mr. Adams will be E. B. Paxton, E. R. Anderson, H. W. Samson, and H. W. Robb.

The new department will work with the various local, national and international associations and agencies interested in standards and codes and will also promote the development of standards for use in the company's engineering and manufacturing department. It centers in one organization the work formerly done by smaller groups throughout the various General Electric plants. At the same time, however, the several standardizing committees already established by the company will continue to function in the development and design of apparatus in their respective lines.

Standardizing Containers¹

Behind the movement for standards to identify quality in goods are achievements in defining standards identifying quantity

HISTORIES of trading are crowded with evidence of the struggle toward common standards for goods which would be understandable by buyers and sellers alike: standards of price, of quantity, and—more recently—of quality. It is no 20th Century discovery that fair trading is possible only when buyer and seller agree on the terms of the sale: on the price to be paid, on the quantity and quality of goods to change hands.

Indeed so basic to fair trading did early traders consider a uniform system of weights and measures that there stands in the first article of the Constitution of the United States a provision giving the Congress "power . . . to fix the Standard of Weights and Measures."

Strange as it may seem, not even yet—150 years after the Constitution was adopted—has the Congress passed a mandatory system of standard weights and measures for the country. That chapter of consumer history will be told some other time. Despite the absence of a national mandatory standard, there is enough uniformity in State and local definitions of ounces and inches to facilitate the exchange of billions of pounds and feet of goods year in and year out. How accurately such definitions are observed is a day-to-day concern not only of governments but of all buyers and sellers of goods.

But quantity standards do not stop with definitions of ounces and inches, nor with inspection of weights and measures. Enormous quantities of goods are neither weighed on scales nor mea-



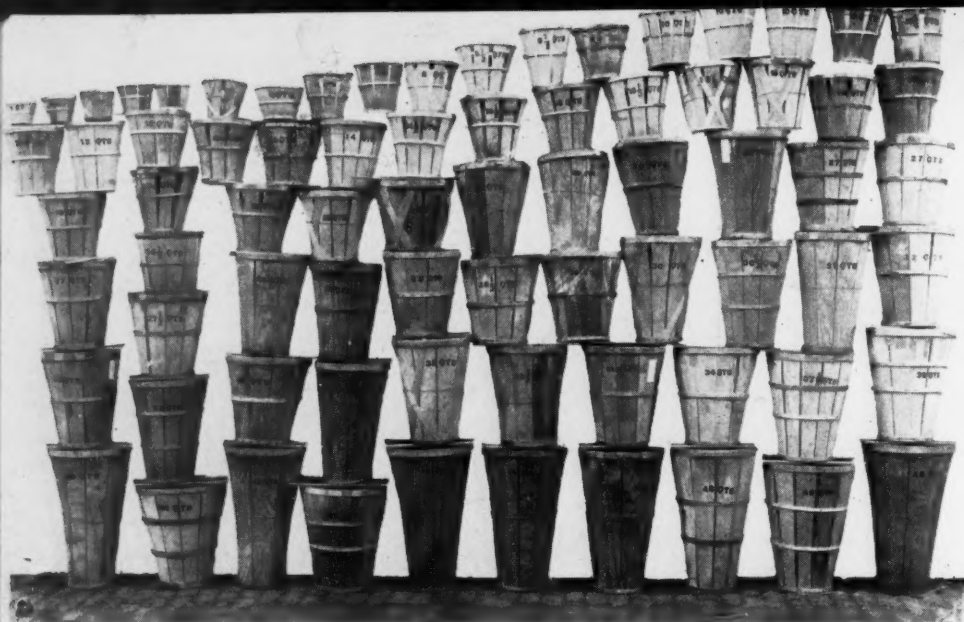
*Courtesy U. S. Department of Agriculture,
Bureau of Agricultural Economics*

sured with yardsticks before the consumer's eyes as he buys. They come in "barrells or bushels," in baskets or boxes, or spools and bolts. Communities recognized 300 years ago that both sellers and buyers valued an official check of the quantity of goods in these packages. Even then it was deemed necessary to have some kind of regulation of the accuracy of container sizes.

Much time has gone by since this earliest of American weights and measures law was passed. Trading has become more and more complicated. Selling of goods in packages has multiplied enormously. On the statute books is another kind of regulation which marks a milestone in the march toward a common buyer-seller language: the standardization of container sizes.

Under constitutional powers to fix weights and measures and to regulate interstate commerce, Congress passed in 1912 the Apple Barrel Act, defining the size of barrels which could be used in shipping this fruit. This law was superseded by the Standard Barrel Act in 1915, defining the

¹Abstracted from an article in *Consumers' Guide*, April 25.



75 odd sizes of hampers, confusing to both buyers and sellers, before standardization. Hampers of the same capacity vary in shape.

Photos courtesy U. S. Department of Agriculture, Bureau of Agricultural Economics

size of barrels for fruits and vegetables. Then came in 1916 the first so-called Standard Container Act. This Act fixed the sizes of certain kinds of baskets used in the sale of fresh fruits and vegetables. Again in 1928, Congress passed a similar Act, this time fixing sizes of hampers and market baskets. The former law applies to shipments in interstate commerce; the latter, to those within, as well as between States.

Because of such standard container legislation, the number of different sized berry boxes has been reduced from 44 to 3; till baskets, from 40 to 4; climax baskets, from 30 to 4; splint baskets, from 35 to 6; round stave baskets, from 25 to 6; and hampers, from 75 to 9.

Consumers have a large stake in the kind of regulation that simplifies the processes of exchange of goods. Multiplicity of container sizes bewilders not only them, but traders all along the line from grower to ultimate buyer. It jacks up costs of packaging, shipping, storage, and marketing. Wise traders know their chances of

marketing more increase with their success in keeping costs down. In the end consumers pay for inefficiency, as they must foot all bills.

Standardization of containers, nevertheless, has been pushed not by consumers but by shippers and by manufacturers of baskets. Shippers saw that container standardization would put vegetable and fruit price quotations on a simpler and more comparable basis. Manufacturers knew that reduction in the number of sizes would enable them to stabilize production, to keep adequate stocks on hand, to standardize machinery, reduce the number of machines necessary for production and cut down inventories in hoops, staves, and other container parts.

Control of container sizes, under the 1916 and 1928 laws, starts not at the market but back in the factory where containers are made. The laws require that manufacturers submit the specifications of proposed containers to the Bureau of Agricultural Economics of the Department of Agriculture. Bureau experts compare the speci-

Some of the sizes of market or splint baskets used before standardization





*Standard sizes of hampers
(The 2-bushel size is not shown here)*

cations with the capacities prescribed, and pass on their legality. Inspectors of the Bureau have access to container factories to see that approved specifications are being followed. Manufacturers seem satisfied with a procedure which includes submission for approval and opening of factories to inspection.

Each type of container has its own rules. Most of the fruit and vegetable containers covered by the Standard Container Acts are bigger than consumer-size. But berry boxes and climax baskets are consumer-size containers for which capacities have been defined.

Climax baskets for grapes (and other fruits and vegetables) must come in 2-quart, 4-quart, and 12-quart sizes. A special 1-pound size is authorized for mushrooms.

Standard baskets for berries and small fruits and vegetables come in dry measure units—half pint, pint, quart, and multiples of the quart. Above the single quart, no in-between sizes—units of less than a quart—are permitted.

Other containers are used almost entirely in farm-to-market and grower-to-jobber-to-retailer shipments. Standard sizes for hampers, round stave and straight side baskets, are fixed at 4 quarts, 8 quarts, 16 quarts, 20 quarts, 24 quarts, 1 bushel, 1 1/4 bushels, 1 1/2 bushels, and 2 bushels. Splint or market baskets are standardized in the following sizes: 4 quarts, 8 quarts, 12 quarts, 16

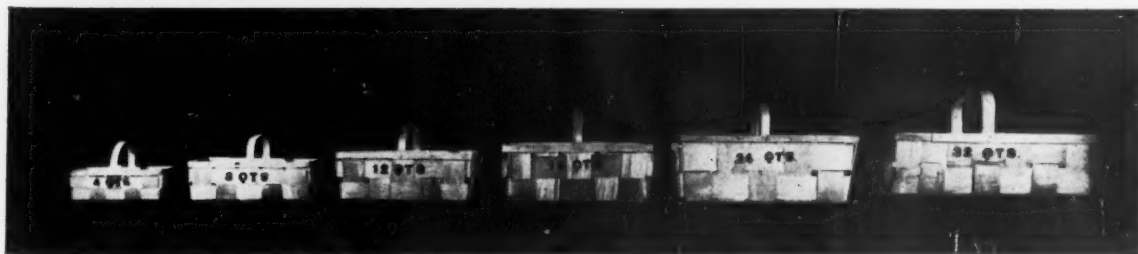
quarts, 24 quarts, 1 bushel. Till baskets are to be made in units of the quart, dry measure.

Capacities, not styles nor shapes (except for climax baskets), are prescribed. In the case of climax baskets dimensions were laid down in the 1916 Act. While the capacity of containers of fresh fruits and vegetables is standardized, styles blossom and fade and blossom again as temperamentally as designs for women's clothes. In one room alone in the Bureau of Agricultural Economics there are samples of 170 different styles of approved baskets and hampers, all of standard sizes, but varying in design from each other in greater or lesser degree.

Different regions have developed different container styles. Various crops have their own ways of dressing for the journey to market. It is no longer true, as was said before the standardization acts, that "every shipper has his own container." But variety is still striking.

Standardization of container capacities is still far from complete. No standards of dimension or capacity are at present fixed for containers of canned fruit or vegetables. Not covered by any Federal standard are sacks, crates, boxes, and paper cartons. Some States have established standard sizes for these container types. But the receivers and jobbers of fruits and vegetables still complain of a multiplicity of sizes which leads to confusion and deception.

Standard sizes of market or splint baskets (square braid type)



Stop Silicosis!

The Division of Labor Standards of the U. S. Department of Labor has, during the past two or three years, been paying special attention to the silicosis problem which has faced many branches of American industry. Many of these efforts were concentrated on the National Conference on Silicosis held in Washington April 14, 1936. Prior to that meeting a number of technical committees composed of approximately 60 experts had been meeting for a year or more under the auspices of the Division of Labor Standards preparing recommendations for consideration at the conference.

Based on the findings and recommendations of this group of experts, the Division of Labor Standards has produced a motion picture film including sound effects and narration with the object of showing employers a few of the methods of control that can be used; educating workers to use such control methods that are provided; and informing state and other governmental agencies of the necessity of regulating dust-producing industries. The picture, "Stop Silicosis," dramatizes the causes and results of silicosis. It shows some of the hazardous conditions under which the Division estimates a million American workers are employed, illustrating the effect on the human body of constant exposure to silica dust, resulting in eventual disability.

This picture is available to any interested individual or group for exhibition purposes without charge except the transportation to and from Washington, D. C. It can be obtained in both 16-mm and 35-mm sizes by applying to the Division of Labor Standards, U. S. Department of Labor, Washington, D. C.

All A.S.T.M. Rubber Standards Published in New Volume

The 1937 edition of the volume of *A.S.T.M. Standards on Rubber Products* presents in convenient form for laboratory use and reference all of the 25 standards relating to rubber that have been issued by the Society. There are 15 methods of testing procedure and nine specifications with a proposed specification for rubber insulating blankets for use around electrical apparatus.

In addition to the standards, a bibliography is included which gives sources of information on properties and testing of rubber and rubber products. This includes references which are compre-

hensive and lists the more important of the recent publications.

The test methods cover various types of physical tests including tension, hardness, abrasion resistance, flexing, compression set, accelerated aging, and chemical analysis. Detailed tests cover wire and cable, rubber hose, and rubber belting.

Specification requirements cover fire hose, rubber pump valves, friction tape, rubber insulating tape, various classes of insulated wire and cable, gloves for electrical workers, etc.

Copies can be obtained from the American Society for Testing Materials, 260 S. Broad St., Philadelphia, at \$1.25 per copy. On orders for ten or more copies, special prices are in effect.

American Companies Use British Standards

The demand for British Standards for the first four months of 1938 more than doubled that of a year ago, reports the Library of the American Standards Association.

Some of the most popular subjects have been: pipe flanges and fittings, pipe threads, machine tools, railway rolling stock, electricity meters, oil circuit breakers, solder, electrical definitions, steel cylinders, railway wheels, sampling and analysis of coal and coke, arc welding, quality control, testing gelatines, and radio interference.

Indexes to British standards are for sale, or any company interested may borrow a copy for review.

The American Standards Association through its library is the central agency in the United States for the distribution and sale of British Standards as well as copies of national standards from the 24 foreign countries that have standardizing bodies similar to those in Great Britain and the United States.

Elevator Manufacturers Follow Safety Code Requirements

"It is becoming more and more the practice for manufacturers in all cases to install equipment in accordance with the provisions of the American Standard Safety Code for Elevators."—*David L. Lindquist, Chief Engineer, Otis Elevator Company, at the Ninth Annual Convention, Greater New York Safety Council.*

Library Work—A Field For Standardization

A COMMITTEE to make recommendations for international unification of documentation practice—the science of keeping permanent records—has been organized under the procedure of the International Standards Association.¹

When the new ISA committee was proposed, the American Standards Association canvassed a number of American organizations in the library field, to find out whether they favored the establishment of the committee and if so, whether they thought this country should take an active part in its work. Basing its decision on favorable replies received from the American Library Association, Special Libraries Association, Medical Library Association, American Association of Law Libraries, American Documentation Institute, and American Home Economics Association, the ASA decided to participate in the work. Miss Carolyn F. Ulrich, chief of the Periodicals Division, New York Public Library, has been appointed as the ISA representative of the ASA.

The new ISA committee will hold its organization meeting at Oxford, England, September, 1938, during the conference of the International Institute for Documentation in that city. The ISA work will be closely coordinated with that of the Institute and the International Federation of Library Associations.

Wide Need of Standardization in Library Work

The need for standardization arises in many phases of library work that requires agreement on principles as well as on practice. This is true for a wide variety of activities, including, for example, cataloging, as well as work performed in the making of all kinds of records — books,

¹The ISA is a federation of the national standardizing bodies in 20 countries; including the United States, Belgium, Czechoslovakia, Denmark, Finland, France, Germany, Great Britain, Greece, Holland, Hungary, Italy, Japan, Norway, Poland, Rumania, Russia, Spain, Sweden, Switzerland.

by

John Gaillard

American Standards Association

periodicals, microfilms, etc. Every librarian is faced with difficulties that could be removed if a standard were set up and generally followed. "Generally" means in most cases "throughout the world," because the librarian's field of activity has no national boundaries. In considering "standards" in this field, therefore, we must think essentially in terms of recommendations agreed on internationally.

A Specific Example

A case where international uniformity in practice is urgently needed and can be established through concerted action is the microfilm—miniature photographic records made on strips of films for the sake of compactness and lasting quality. During the last few years, essential problems have arisen. What is the most suitable size of film for this purpose? Should the film take the pictures lengthwise or crosswise? What are the basic requirements for apparatus used in making the reproductions and in reading the film? These problems and others must be solved in a commonly agreed-on "standard" manner, if this new technique is to be applied with maximum effectiveness and minimum trouble.

Choosing the Right Moment

A promising new technique like this offers a strong incentive for development. Yet, since the technique is a *new* one, it may be necessary first to experiment — not only in the laboratory and

the workshop, but also in actual practice—before standards with sufficient temporary stability can be adopted. On the other hand, when the time is ripe for standardization it is important to have uniform practice all over the world. Lack of interchangeability between microfilms originating from libraries in different countries would defeat much of the very purpose for which they are intended.

ASA Has Successful Precedent

An objectionable condition of this kind threatened to arise a few years ago in regard to 16-millimeter sound film. The Society of Motion Picture Engineers in this country had adopted a standard for this film concerning the location of its perforations and sound track in relation to the pictures. This standard has since been approved as an American Standard.

In the meantime, several foreign countries prepared to adopt a standard that would have made their 16-millimeter sound film the same as the American, with one important exception: the location of perforations and sound track was reversed—or in other words, their film would have been equivalent to the American film seen in a mirror. Obviously, adoption of this plan abroad would have prevented ready interchange between American and European films—to the detriment of all parties.

The American film industry, acting through the channels of the ASA, laid the case before the International Standards Association. After an informal conference in Paris, canvasses made by the foreign national standardizing bodies in their countries—and even arbitration, in the British film industry—the American Standard was approved by the ISA as a recommendation for world-wide practice. Accordingly, it has now been adopted by all countries as their national standard—a result due only to effective action taken by the ISA upon the ASA's initiative.

National Consensus Required

Of course, such a successful international move can be made only if a national group has come to a definite agreement on its own attitude. The most effective forum where such agreement can be reached is the ASA. Under its procedure, conferences may be called or committees organized, where delegates of all interested groups can discuss the merits of the case—from a national point of view and in regard to international practice. The consensus of such a conference or committee is the best obtainable, since every interested group has a right to be represented.

The existence in the ASA of a permanent rep-

resentative group dealing with standardization problems in its specific field greatly promotes speedy and effective agreements. In the case of the 16-millimeter sound film, an ASA committee on standards for motion pictures voices American opinion. Some ASA fields of activity are so wide that a central correlating committee has been organized. This has already been done for mechanical, electrical, mining, consumer goods, and highway traffic standards, as well as for safety codes and building codes. The Mechanical Standards Committee coordinates the work between two or more technical committees in its field, or confers, for example, with the Electrical Standards Committee on how to handle a project which concerns the mechanical as well as the electrical industry.

Would it not be helpful to the librarian in this country if a similar correlating committee were organized in the American Standards Association to initiate, coordinate, promote, and supervise the establishment of American Standards in the library field? As a logical extension of this work, such a committee would also represent American opinion in international activities. Such a "Library Standards Committee" of the ASA could assign specific problems to technical committees of experts. This would avoid duplication of work done by committees of different national organizations in the library field. Such duplication means a waste of effort and leads to results that lack uniformity.

Work Has Already Been Started

The first step has already been taken. A few years ago, the ASA, upon the unanimous recommendation of a general conference of experts, approved and published the American Recommended Practice, Reference Data for Periodicals. This first American Standard in the library field has aroused a good deal of interest. Will it be the beginning of a great movement toward organized standardization in library work? Few human activities offer a more splendid opportunity for effective standardization than language and the printed word.

Heat Exchange Institute Publishes New Standard

The Heat Exchange Institute has published its "Standards of the Tubular Exchanger Section", covering mechanical, construction, and thermal standards for shell and bare tube heat exchangers.

Copies are available from C. H. Rohrback, secretary, 90 West Street, New York, at 75 cents each.

Sound Meters to Give Comparable Results With Standard Calibrated Microphones

by

C. R. Hanna¹

Chairman, Subcommittee on Fundamental Sound Measurements, Sectional Committee on Acoustical Measurement and Terminology (Z24)

AGREEMENT between sound meters is a primary aim of three of the four standards prepared by subcommittees of the Sectional Committee on Acoustical Measurement and Terminology (Z24). Two of these standards, for Sound Level Meters and Noise Measurement, were completed and approved in 1936. The last, for calibrating microphones, was completed in 1937 and has now been approved as an American Recommended Practice.

Microphones are the heart of all objective sound meters, and the Recommended Practice which has just been approved should be of material assistance to workers in measuring sound.

Such performance characteristics as:

Single Frequency response in a sound field;

Non-linearity;

Directional characteristics

are accurately defined to form the basis of the recommendations.

Several acceptable procedures of calibration are described, and precautionary measures stated. Included are the following methods:

1. The Thermophone
2. The Electrostatic Actuator
3. The Rayleigh Disk

An extensive bibliography accompanies the recommendations.

The Subcommittee on Fundamental Sound Measurements completed its recommendations for cali-

bration of microphones in 1936. They were published for suggestions and criticism in *Electrical Engineering*, March, 1936, and in the *Journal of the Acoustical Society of America*, April, 1936.

An arrangement with the National Bureau of Standards whereby microphones and associated equipment may be calibrated at the Bureau was made in May, 1937, so that differences in readings between various instruments will be still further reduced.

The recommendation that the National Bureau of Standards serve as a court of final appeal in cases of dispute was added to the subcommittee's report, and the proposed Recommended Practice was then approved by the sectional committee and by the Acoustical Society of America, sponsor.

It has now been approved by the American Standards Association and published as American Recommended Practice for Calibration of Microphones (Z24.4-1938).

The chairman wishes to express appreciation of the cooperation given by the members of the Subcommittee on Fundamental Sound Measurements. The work of Mr. Sivian, secretary, deserves special recognition.

Acknowledgement is also due the committee on Electro-Acoustic Apparatus of the Institute of Radio Engineers, whose work was freely drawn upon.

Our Front Cover

shows equipment at the National Bureau of Standards for making absolute sound measurements. The observer is determining the deflection of a Rayleigh disc. The Bureau has agreed to act as the central agency for calibrating acoustical instruments, and is now setting up the apparatus.

¹Manager, Electro-Mechanical Division, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.

Electrical Experts on Committee Prepared Microphone Standard

Members of the Subcommittee on Fundamental Sound Measurements which developed the American Recommended Practice on Calibration of Microphones (Z24.4-1938) are:

C. R. Hanna, Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., *Chairman*

L. J. Sivian, Bell Telephone Laboratories, New York, *Secretary*

Stuart Ballantine, Radio-Frequency Laboratory, Boonton, N. J.

B. R. Hubbard, Melrose, Mass.

E. W. Kellogg, Moorestown, N. J.

H. W. Lamson, General Radio Company, Cambridge, Mass.

A. H. Inglis, Bell Telephone Laboratories, Inc., New York

H. B. Marvin, General Electric Company, Schenectady, N. Y.

J. P. Maxfield, Electrical Research Products, Inc., New York

Irving Wolff, RCA Victor Company, Camden, N. J.

V. L. Chrisler, National Bureau of Standards, Washington, D. C.

Three standards, prepared under the auspices of the Sectional Committee on Acoustical Measurement and Terminology, have been available for some time: Acoustical Terminology (Z24.1-1936) 25 cents; Noise Measurement (Z24.2-1936) 25 cents; Sound Level Meters for Measurement of Noise and Other Sounds (Z24.3-1936) 25 cents. The fourth, Calibration of Microphones (Z24.4-1938) is just off the press. It is also now available at 25 cents.

Western Society of Engineers To Act as ASA Representative

The Western Society of Engineers, Chicago, has accepted the responsibility of acting as local representative of the American Standards Association in the Chicago district.

The Society, which maintains a library of over 20,000 volumes on engineering subjects and 250 current technical publications, will keep a file of all approved American Standards, and all ASA publications, and will answer inquiries concern-

ing the American Standards Association or its activities.

Local representatives of the American Standards Association in other localities are:

F. V. Bistrup, Industrial Department Secretary, Associated Industries of Massachusetts, Boston

E. D. Strickland, Executive Secretary, Engineering Society of Buffalo, Buffalo, N. Y.

C. J. Thomas, Secretary-Manager, Cleveland Engineering Society, Cleveland, Ohio

Monroe L. Patzig, Secretary-Treasurer, Engineers Club of Des Moines, Des Moines, Iowa.

Bernard Moll, Secretary, Grand Rapids Engineers Club, Grand Rapids, Mich.

William H. Sanford, Secretary-Treasurer, The Engineers Club of Philadelphia, Philadelphia, Pa.

K. F. Treschow, Secretary, Engineers Society of Western Pennsylvania, Pittsburgh, Pa.

C. W. Whitney, Executive Secretary, Purchasing Agents' Association of Northern California, San Francisco, Calif.

Prof. George S. Wilson, Engineering Experiment Station, University of Washington, Seattle, Wash.

The address of the Western Society of Engineers is: 205 West Wacker Drive, Chicago, Ill.

A.S.T.M. Organizes Committee On Thermal Insulating Materials

A new committee on Thermal Insulating Materials has been organized by the American Society for Testing Materials and its organization meeting was held during the A.S.T.M. committee week at Rochester, March 7.

For some years the A.S.T.M. committee on Refractories, C-8, has been carrying on standardization and research work involving materials generally considered in the field of high-temperature insulations. The new committee will undertake work on insulations for use at lower temperatures, in the piping field and similar type industrial insulations, for example.

At its organization meeting the committee considered the possibility of developing tests for the following properties:

Abrasive resistance	Shrinkage on drying (plastic materials)
Compressive strength	Slump (of plastic materials)
Handleability	Coverage (of plastic materials)
Hardness	Adhesiveness (of plastic materials)
Loss of Weight	Surface finish (of plastic materials)
Modulus of rupture	
Volume shrinkage	
Vibratory tests	

Mention was also made of the various thermal properties of interest in addition to thermal conductivity, such as, specific heat, coefficient of expansion, etc. The committee is working in close cooperation with the American Society of Heating and Ventilating Engineers, particularly with respect to the determination of thermal conductivity.

Railway Engineering Association Reports on Standardization

SOME of the standards used by the railroads and developed by the American Railway Engineering Association are of interest to other industries and should, therefore, be considered under the procedure of the American Standards Association for approval as American Standards, said J. C. Irwin, retiring president of the A.R.E.A. at the annual meeting of the Association at Chicago in March.

Standardization is one of the important activities of the A.R.E.A., a large part of its attention being devoted to the development of its Manual on Recommended Practices.

"Some of our recommended practices," Mr. Irwin said, "can well be used by any railroad with such modifications as it sees fit to make without having any effect on the practice of other railroads. There are other types of our recommended practices which are of concern to more than one railroad on account of the relations between them and other railroads. Furthermore, there are some practices which should be carried to the status of American Standards on account of their mutual interest to other industries as well as other railroads."

Tells About Research

Mr. Irwin also referred to the research work now being directed by committees of the association, including studies of the Special Committee on Stresses in Railroad Track under the supervision of Dr. Talbot; an investigation of transverse fissures, a special rail investigation, tests of various types of joint bars, and an investigation of the continuous welding of rails, being directed by the Rail Committee; and the boiler feed water investigation directed by the Water Service Committee. Mr. Irwin said that the investigation of the relation between track and rolling stock has been re-initiated through a joint committee of the Engineering Division of the A.R.E.A. and the Mechanical Division of the Association of American Railroads. These two divisions have undertaken a joint study of the prevention of damage due to brine drippings.

No new A.R.E.A. recommended practices for

national standardization were suggested in the report of the Committee on Standardization. As a matter of information the committee advised that the Specifications for the Manufacture and Installation of Motor Truck, Built-In Self-Contained and Portable Scales for Railway Service—1936, are in the process of being advanced to American Standard, and also that the Specifications for the Manufacture and Installation of Four-Section Railway Track Scales are on their way toward approval as American Standard.

New Specifications

Other committees that reported to the convention discussed research on standards and plant practices affecting various features of railroad operation. The Committee on Roadway presented new specifications for the construction, excavation, and temporary lining of tunnels. The Committee on Ties discussed studies that have been going on for some years, and reported that their studies indicated that the specifications are not too advanced for practical application.

The Committee on Track reported results of recent studies, and recommended new specifications for track tools, and certain changes in the Manual of Recommended Practices relating to switches and frogs.

The Committee on Highways reported results of studies for the use of automatic crossing gates and other crossing safety devices. The Committee on Rails reported additional data with respect to rail failures and the activities of the AAR detector as well as studies of long rail lengths and continuous welded rail. The Committee on Wood Bridges and Trestles, among other assignments, plans to review specifications of the American Association of State Highway Officials for overhead highway bridges and also fireproofing of wood bridges and trestles.

Coordinate Requirements

The Committee on Masonry reported revisions of specifications and standard practices in some cases to coordinate A.R.E.A. requirements with

those of the American Society for Testing Materials and the American Association of State Highway Officials. The committee recommended that the A.R.E.A. adopt the A.S.T.M. specifications C76-37 for re-inforced concrete culvert pipe.

The Committee on Iron and Steel Structures recommended that the standard welding practices of the American Welding Society, published in 1936, be followed by the railroads pending further study.

F. E. Morrow, chief engineer, Chicago and Western Indiana, Chicago, was elected president of the Association, succeeding J. C. Irwin, valuation engineer, Boston and Albany Railroad. Other officers elected and installed in office at the meeting were:

George F. Fanning, chief engineer, Erie Railway, *second vice-president*

A. F. Blaess, chief engineer, Illinois Central, *treasurer*

J. C. Irwin, retiring president, and F. E. Morrow, president-elect, presided at all the sessions during the annual meeting. Mr. Irwin, who in his review of activities of the Association referred at some length to the use of standards, is active in the work of the American Standards Association. He was chairman of the ASA Standards Council, administrative committee in charge of all standardization activities of the ASA, from 1934 to 1937.

A.S.T.M. Publishes Standards On Refractory Materials

The 1937 *Manual of A.S.T.M. Standards on Refractory Materials* gives in their latest form all of the specifications, test methods, and definitions in this field developed by the American Society for Testing Materials. In addition to the standards, detailed methods for interpretation of refractory test data are included. There are also comprehensive surveys showing service conditions of refractories in important consuming industries, and details of the standard samples of refractory materials.

Specification requirements cover various types of fireclay brick, ground fire clay, and other refractories. The test methods include chemical analysis, cold crushing tests, high-temperature heat insulation, tests for resistance to spalling, particle size, permanent linear change after reheating, porosity and permanent volume changes, and pyrometric cone equivalent.

A new section covering a recommended procedure for calculating heat losses through furnace

walls, is intended as an aid in the design and operation of furnaces lined with refractories.

The latest *Methods for Interpretation of Refractory Test Data* incorporate numerous revisions and amplifications.

Detailed tables give the composition of the standard samples of refractory materials developed in cooperation with the National Bureau of Standards and interested laboratories. Comprehensive surveys have been made of conditions of refractories in the following industries: open-hearth practice, malleable iron industry, copper industry, lead industry, by-product coke ovens and glass industry. The last-named survey, included in the publication for the first time, covers refractory service in the glass industry as it pertains to continuous bottle furnaces.

Copies of the 180-page publication can be obtained from the American Society for Testing Materials, 260 S. Broad St., Philadelphia, at \$1.25 per copy in heavy paper cover, with special prices on orders for ten or more copies.

Contractors Ask ASA Approval Of Revised Construction Code

The 1938 Revised Edition of the *Manual of Accident Prevention in Construction* has been submitted to the American Standards Association by the Associated General Contractors of America, for approval. The revised edition will be considered by a representative committee under the procedure of the American Standards Association for recommendation to the ASA.

The original edition was approved by the American Standards Association in 1932.

Standards for Refinishing To Help Sales of Used Cars

A standardized procedure for reconditioning used cars, at a fixed base cost, would simplify a car dealer's selling problem, it is believed by manufacturers of painting and cleaning equipment and materials, according to a report in *Business Week*, April 16. To cooperate in developing by experiment a standard procedure for refinishing old cars, a group of these manufacturers in Detroit have formed the Used Car Appearance Reconditioning Institute. The Institute is operating a refinishing shop, using sample cars from interested dealers to determine final recommendations, *Business Week* reports.

Democratic Methods Wisest in Preparing Standards

IF free citizens are expected to comply with laid down rules and regulations, is it not reasonable to permit those affected or benefited to participate in the formulation of such habits and customs? In other words, it seems desirable to follow the rule of consensus.

To my mind, one of the interesting developments in the safety movement has been the acceptance of the principle that it is only by bringing about a consensus on problems which affect the public that we can expect to get general and voluntary acceptance of patterns for safe practice and physical protection. There are many evidences about us that this is the wise method of securing acceptance of safety codes, and of all other standards for safer work places and equipment.

Standards Not Final

Of course, standards established by such methods are often far from perfect. Majorities are not always right, as history has proved time after time. But reasonableness, after all, is far more important than theoretical perfection. Perfect protection against all hazards usually involves physical conditions which are not immediately attainable and perhaps also qualities of heart and mind which comparatively few humans possess. A workable solution to any problem is more desirable than a perfect one which requires impossible conditions for its attainment.

We must realize, then, that the consensus of all parties and interests in any given problem does not mean that the current conclusions, decisions, or practices necessarily establish the ultimate solution of that problem.

Wide Representation Makes Standards Workable

The new social approach to accident prevention must make it plain to everyone that the present consensus on any subject is not necessarily final in any respect. Twenty-five years from now the consensus of all participants in any safety problem may be radically different from the present one. The conditions under which people will then work and live will be different, and our approach to our many problems of life and work will be profoundly modified by the increased

Methods of the American Standards Association, which bring together representatives of all the various interests concerned with a standardization problem, are described as constituting the essence of democracy in an editorial by W. J. Cameron, Managing Director of the National Safety Council. Reprinted from *National Safety News*, for April.

knowledge which is continuously becoming available.

It seems to me that safety has reached a very desirable status when the various institutions participating in accident prevention can agree that all ought to have representation in the studies and the decisions which influence our present day activities. It is this wide representation of minds and experience that makes the resulting standards workable under so many varying conditions.

There is another important advantage in such methods of procedure. Consensus on a safety program is the essence of democracy. While saving men from premature accidental death we are at the same time making a demonstration of the very basis on which our democratic government was established. Such methods of formulating standards will avoid the pitfalls of regulation based on limited experience or on purely academic conclusions.

If, in addition to following the principle of establishing standards by consensus, we continue our studies and our researches for the purpose of arriving at more effective remedies for accident causes, we shall also be demonstrating the ability of democracy to move forward on the pathway of ultimate truth.

Should we ever feel that we have attained the ultimate, I am afraid that the safety movement will have outlived its usefulness. The ultimate, like the horizon, continues to elude us. Human progress in all lines of endeavor will make current knowledge and methods inadequate and create new demands on the forces of accident prevention. The principle of consensus will keep us alert to changing conditions and needs.

What Should Labels Say?

WHAT Mrs. Jones wants to know about the shirts and slips and towels and blankets and stockings and mattresses she buys has been occupying the attention of a committee of the Consumer-Retailer Relations Council during the best part of a year. Now the committee's work has reached a preliminary stage of completion and the Council is making a serious attempt to find out from all groups—manufacturers, retailers, and consumers—what they think of the committee's proposals, published in the Council's first Manual on Informative Labeling.

Contrary to customary practice, the new Labeling Manual is partly in the form of a questionnaire, to give all groups a chance to express their opinions on the proposed labels, and partly a discussion of the purpose of informative labeling. This section tells clearly and concisely why the consumer is interested in labels, why the retailer has an interest in the subject, and how the manufacturer benefits from an intelligent labeling program.

The questionnaire consists of loose "check sheets" for the various commodities studied, with space for the manufacturer, retailer, or consumer to vote on the relative importance of the different items included on the model label. The Consumer-Retailer Relations Council believes that manufacturers should have an opportunity to say from their own experience whether it is practical to give the information proposed; and retailers should have an opportunity to indicate whether their experience shows one item to be more important than another or that it is impractical to include some of the information. Consumers, too, may have definite ideas on the relative importance of the various items or may find that some essential piece of information has been omitted from the list. The "check sheets" offer them all a chance to express their opinions. After each organization has voted, the "check sheets" are to be returned to the Council for further study.

When the Consumer-Retailer Relations Council was organized last year to bring about a better understanding of the common interests and problems of retailers and consumers, the first big problem it tackled was this one of labeling. A committee of the Council studied the types of merchandise for which there is the greatest need of informative labels. Eleven commodities were selected for first consideration: blankets, cutlery, hosiery, mattresses, piece goods, sheets, men's

Consumer-Retailer Relations Council asks manufacturers, retailers, and consumers to vote on information for over-the-counter goods

shirts, slips and petticoats, towels, women's wash dresses, and window shades.

After study of each commodity separately it was decided that five general questions were applicable to all. These are:

What It Is Made Of (Composition)—

Kind and quality of fibre, metal, wood, leather, ceramics, cement, rock, fur, plastics, petroleum products, rubber, paper, bone, chemicals, drugs; ingredients of food products, etc.

How It Is Made (Construction)—Size, weight, number of yarns per inch, weave, number of stitches per inch, finish, ply, cut, hand or machine made, pressed, molded, stamped, inlaid, etc.

What It Will Do (Performance)—Degree of color permanence; shrinkage or stretchage; breaking strength; seam slippage; resistance to water, perspiration, wind, wear; light, heat, and power tests; power tests; power consumption; cost of upkeep; etc.

How To Care For It—Detailed instructions for washing and/or cleaning; precautions to be observed in cleaning or in storage; refrigeration; oiling and greasing; polishing; etc.

Recommended Uses—Purposes for which it is most suitable; recipes; etc.

Sponsor—Name and address of the manufacturer and/or distributor who sponsors the product and the label.

Specific items of information applicable to each commodity were worked out by the committee under these general headings. On blankets, for instance, the committee decided that buyers would want to know the following specific data under the heading, "What It Is Made of":

Fiber content: per cent of each fiber by weight
Wool%; cotton%; other fibers%
Binding material

On slips and petticoats, on the other hand, the same section would include the following:

Name of fabric
Fiber content
Yarns per inch: warpwise; fillingwise
Weight ounces per square yard
Weighting or sizing%

The Council is distributing its Manual to a wide group of retail stores, manufacturers, and consumers. These organizations are asked to vote on each item included in the "check lists." A vote of "a" will indicate what items the voter considers most important; "b" will indicate the less important items but those that are considered desirable; "c" will indicate items which are considered undesirable or unnecessary; and "d" those items which must await agreement on a standard test.

In order to assist manufacturers and retailers in determining whether the information suggested can be supplied, explanatory notes on each sheet tell why certain information is included, list standard specifications and test methods which are applicable, and suggest other types of information which might be given.

It may be found that some of the items now included can only be satisfactorily answered if standard tests are worked out—and provision is made in the lists for indicating which items these may be.

From the replies received, the Council expects that it will be able to compile model labels satisfactory to all groups. The past work of the committee will be completely revised in the light of these replies, and a new manual of proposed labels representing the combined opinions of the various groups will be issued by the Consumer-Retailer Relations Council as soon as possible.

Several merchandising organizations have already indicated that they consider the Council's work on the proposed labels so important that they are planning to put the results into immediate use in their own labeling practice.

N.R.D.G.A. Issues Labeling Report

The National Retail Dry Goods Association has issued in mimeographed form its preliminary report on a survey conducted recently to find out from retailers what their experience indicates consumers want to know about their purchases. The report uses charts to show what types of information consumers have asked for on 25 different items of merchandise.

Copies of the preliminary report can be obtained from the National Retail Dry Goods Association, 225 W. 34 Street, New York.

Retailers and Consumers Collaborate on Label Report

The preliminary manual on Informative Labeling, now being circulated by the Consumer-Retailer Relations Council for suggestions and criticism, is expected to form the basis for standard labels satisfactory to manufacturer, retailer, and consumer. A wide group of organizations is being asked to vote on the items included and their replies will determine what material is to be shown on the final draft of the proposed labels.

The Committee on Labeling of the CRRC, which prepared the preliminary manual, is made up of the following members:

Ruth O'Brien, chief, Division of Textiles and Clothing, U. S. Bureau of Home Economics, *Chairman*

A. N. Barnes, Sears, Roebuck and Company

T. L. Blanke, Manager, Merchandising Division, National Retail Dry Goods Association

C. W. Dorn, J. C. Penney Company

Alice Edwards, formerly Executive Secretary, American Home Economics Association

Alfred D. Egendorf, Lit Brothers

E. E. Freedman, director, R. H. Macy's Bureau of Standards

Werner K. Gabler, American Retail Federation

Edward L. Greene, manager, National Better Business Bureau

Mrs. Bert W. Hendrickson, chairman, Advisory Committee on Consumer Interests, New York World's Fair

Jules Labarthe, Jr., Senior Industrial Engineer, Mellon Institute for Industrial Research

Carol Willis Moffett, School for Fashion Careers

C. S. Pierce, in charge of the Abraham & Straus Laboratory

Charles L. Simon, Industrial By-Products and Research Corporation

Roger Wolcott, executive secretary, Consumer-Retailer Relations Council

Any one particularly interested in labels for the eleven products included in the preliminary manual may write the Consumer-Retailer Relations Council, 8 West 40th Street, New York, for additional information. The eleven commodities are: blankets, cutlery, hosiery, mattresses, piece goods, sheets, men's shirts, slips and petticoats, towels, women's wash dresses, and window shades.

Uniform Safety Requirements Result From Boiler, Pressure Vessel Codes

USE of safety standards, codes and practices in industrial accident prevention is almost as old as the movement itself, although it is always difficult to determine the exact part which this form of standardization work has played in bringing about a reduction of the accident frequency and severity rate of industry. There are many angles to a movement of this kind and any one of them tends to become lost in the general picture. This is just as true of the use of safety codes or standards as of any other phase of the work, so that occasionally it is worthwhile to review the situation and obtain a new estimate of the value of the various activities.

In making such a review one can find no better example of the value of the use of safety standards than the experience of American industry in the operation of industrial and marine boilers and unfired pressure vessels. In the early days of the accident prevention movement, faulty construction and operation of boilers was a chief contributor to accident frequency. Local and state governments began legislation to regulate the operation of this equipment, but, as was true of much of the safety legislation of the past, very little standardization appeared in the picture. There was no uniformity in the legislation as between states or even between municipalities in a single state; and this situation placed an extra burden on the manufacturers of boilers and pressure vessels throughout the country.

Organized in 1911

The demand for a national program in this field started very much earlier than the demand for uniformity in other forms of safety requirements. The American Society of Mechanical Engineers, recognizing the desirability of bringing some order out of the chaos which existed, organized its Boiler Code Committee¹ in 1911. During the entire 27 years of its existence the committee has devoted its attention to the formulation of rules and regulations covering the design and selection of materials, and the construction, testing, and inspection of power boilers,

locomotive boilers, low-pressure heating boilers, miniature boilers and unfired pressure vessels.

Success in Preventing Accidents

The primary purpose of the work of this committee is accident prevention. That its purpose has been accomplished is shown by the fact that a boiler explosion is now looked upon as the exceptional thing to occur. The various sections of the code have been adopted by 23 states, the Hawaiian Islands and 15 municipalities throughout the United States. The authorities of these states and municipalities, including inspectors, have not only cooperated whole-heartedly in the development of the code requirements but individually and through their national organization, the National Board of Boiler and Pressure Vessel Inspectors, they have assisted in the uniform adoption of the codes and in obtaining uniformity in their administration.

In more recent years the American Society of Mechanical Engineers and the American Petroleum Institute² have, through a joint committee, prepared another code of safe practice which provides rules for the design and construction of unfired pressure vessels for petroleum liquids and gases. The U. S. Department of Commerce, through its Bureau of Marine Inspection and Navigation, has formulated a comprehensive group of marine boiler rules which contain detailed specifications for the materials used in marine boilers and pressure vessels and for their design, construction and installation. The installation of boilers and pressure vessels in the marine service involves special hazards, and it is therefore important that every precaution be taken to avoid any failures or explosions in this type of equipment.

Use A.S.T.M. Standards

Throughout this work the specifications of the American Society for Testing Materials have played a very large part. Forty-three of these specifications have been incorporated in the A.S.M.E. boiler construction code. The accept-

¹Dr. D. S. Jacobus, Advisory Engineer, Babcock and Wilcox Co., New York, is now chairman of the Boiler Code Committee.

²Walter Samans, Mechanical Engineer, Sun Oil Co., Philadelphia, member of ASA Standards Council, is chairman of the joint A.P.I.-A.S.M.E. Code Committee.

ance by one organization of such a large number of specifications of another is a good example of complete coordination between organizations working in the same field. The rules for marine boilers include 21 specifications for ferrous and non-ferrous materials which are identical with or conform substantially to A.S.T.M. specifications.

Any review of the work which has been carried on in the boiler field would not be complete without reference to work done in related fields. The development of standard pipe flanges and fittings and the observance of proper rules covering their use contribute greatly to the safe installation and operation of boiler and pressure vessels. The Sectional Committees on the Standardization of

Pipe Flanges and Fittings; on the Code for Pressure Piping; and on the Standardization of Wrought Iron and Wrought Steel Pipe and Tubing, operating under the procedure of the American Standards Association, have contributed to this safety program.

Again the work of the American Society for Testing Materials is evident in the use of a considerable number of specifications in the standards that have been prepared by the sectional committees just mentioned. The cooperation which has existed between these various organizations, the intensity with which they have carried on, and the wide-spread use of their recommendations all speak for themselves.

ASA Committee Asks Comment On Standards for Audiometers

As a further step towards a more scientific method of measurement of hearing loss, a committee of the American Standards Association is now considering minimum requirements for audiometers for general diagnostic purposes. With an agreement on such requirements, standard tests can be set up to determine whether a particular audiometer meets the required standard.

These standards, if put into practice, should bring about a uniformity in audiometers. When a person's hearing is tested with an audiometer meeting the minimum requirements and in quiet surroundings, the results will indicate the person's threshold of hearing as compared with average normal threshold.

Representatives of the American Medical Association are working closely with the ASA committee on audiometers. The secretary of the Council on Physical Therapy of the AMA is a member of this committee.

The standards now being considered are being circulated for comment and criticism to audiometer and hearing aid manufacturers as well as to others who are known to have an interest in the subject. Copies of the draft standard may be obtained from the American Standards Association.

New British, Canadian Standards Available from ASA

New and revised standards have been received from the British Standards Institution and the Canadian Engineering Standards Association as

listed below. Copies may be borrowed or ordered from the ASA office. Members asking for copies are requested to mention the serial number of the standards they are ordering.

No. New British Standards

- 774-1938 Under-Floor Steel Ducts for Electrical Services, with Fittings
- 775-1938 Contactors when supplied separately or in combination with other gear
- 791-1938 Bomb Calorimeter Thermometers
- 792-1938 Mild Steel Dustbins
- 793-1938 Tungsten Filament Electric Lamps, and Fittings, with Partial Daylight-Color Corrections
- 794-1938 Transformers for Low-Voltage Lighting below 1 kva Rating (Excluding transformers for Use in Mines)
- 796-1938 Long Length Moulded Rubber Hose with Cotton Braided Reinforcement (Air Hose, Water Hose, Chemical Hose (Excluding Liquid Organic Solvents), Brewers Hose)

Revised British Standards

- 122-1938 Milling Cutters and Reamers (Superseding B. S. 122-1931)
- 232-1938 Vitreous-Enamelled Steel Reflectors for Electric Lighting. Open Dispersive Type (Superseding B. S. No. 232-1935)
- 535-1938 Miners' Lamp Bulbs (Superseding B. S. 535-1936)
- 616-1938 Sampling of Coal Tar and Its Products (Superseding B. S. 616-1935)
- CE (EL) 6356 Supplement of Revisions to B. S. 134-1937. Iron or Steel Tubular Poles for Telegraph and Telephone Purposes

Revised Canadian Standards

- S6-1938 Steel Highway Bridges (Third Edition)
- G26-1938 and G27-1938 Commercial Bar Steels—Commercial Quality Hot-Rolled Bar Steels; Commercial Cold Finished Bar Steels and Cold-Finished Shafting (Third Edition)

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